4.2

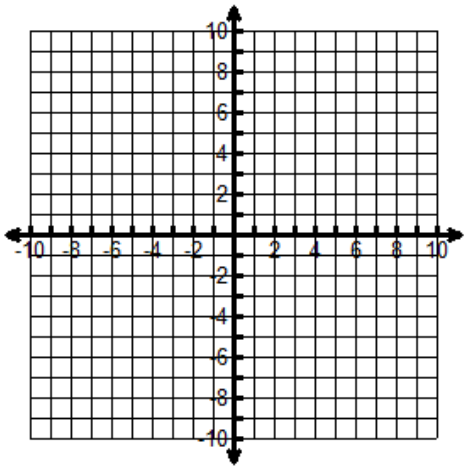
Key Features of Graphs

Name _____ **Date** _____ **Period** _____

Analyze the key features of each given function.

a. **Graph the function**
b. **Identify the intercepts (*x* and *y*)**
c. **Identify the relative maximums and minimums**
d. **Identify the intervals where the function is increasing, decreasing or constant**
e. **Identify the intervals where the function is positive or negative**
f. **Determine end behavior**
g. **Determine symmetry**

1. $f(x) = -2x^2 + 4$



a.

b.

c.

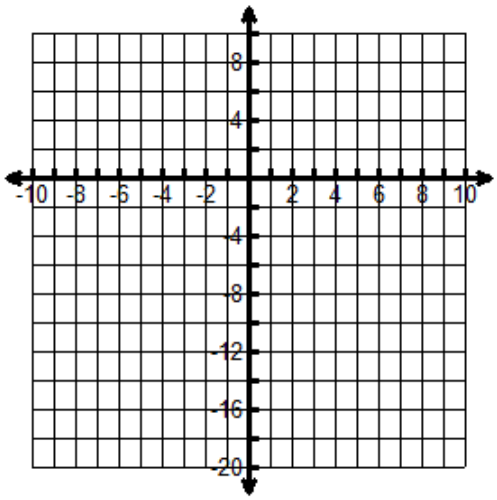
d.

e.

f.

g.

2. $f(x) = x^3 + x^2 - 9x - 9$



a.

b.

c.

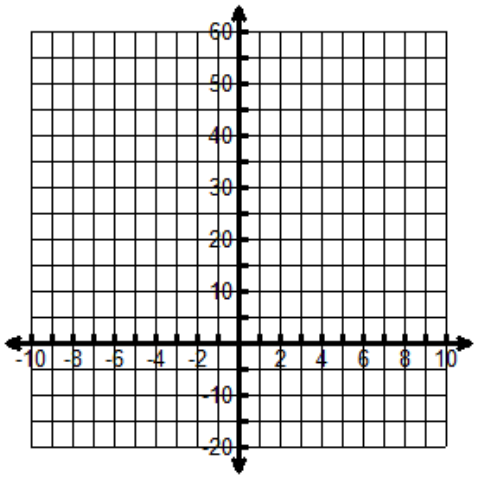
d.

e.

f.

g.

3. $f(x) = e^{x+4} - 3$



a.

b.

c.

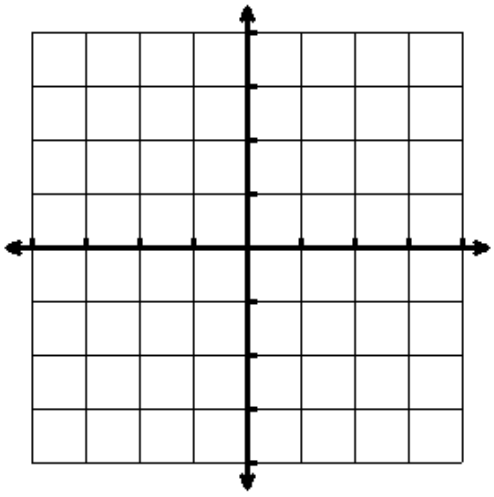
d.

e.

f.

g.

4. $f(x) = 3\sin(-x)$



a.

b.

c.

d.

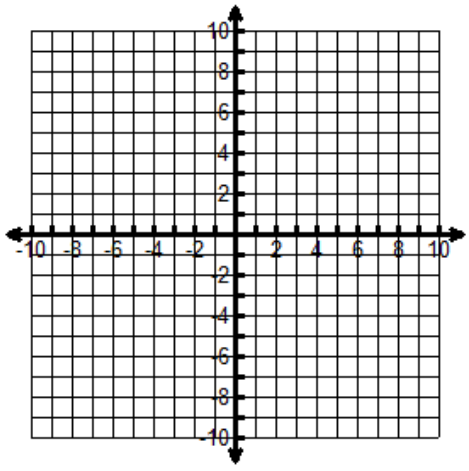
e.

f.

g.

5. $f(x) = \frac{-2}{3}x$

a.



b.

c.

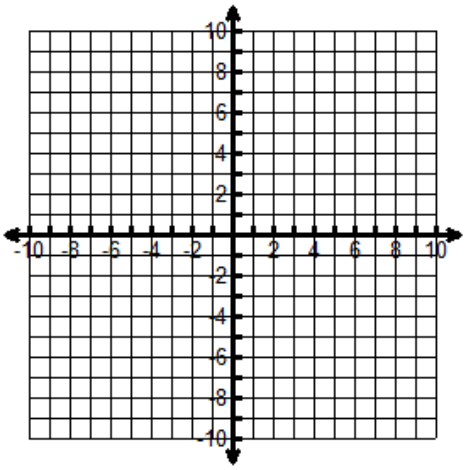
d.

e.

f.

g.

6. $f(x)=\ln(x-3)-1$



a.

b.

c.

d.

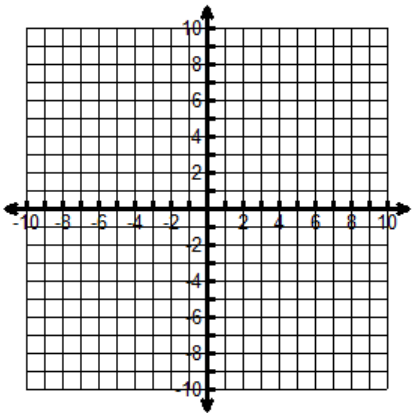
e.

f.

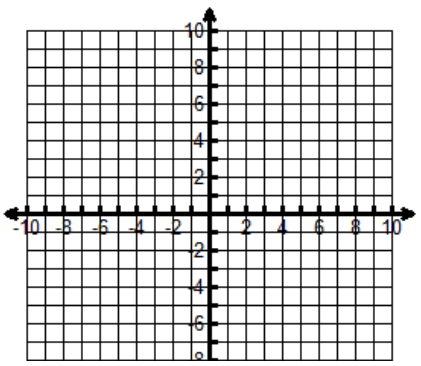
g.

Use the characteristics to sketch a graph of the function described.

7. *f(x)* is a function with intercepts at (-1, 0) and (0, 3), end behavior $\lim_{x\to-\infty} f(x)=-\infty$ and $\lim_{x\to\infty} f(x)=\infty$ and passes through the point (3, 7).



8. *f(x)* is an even function with a minimum at (-2, -5), a maximum at (0, 0), intercepts at (-3, 0) and (3, 0), and end behavior $\lim_{x\to\infty} f(x)=\infty$.



9. *f(x)* is a function with intercepts at (-5, 0), (-2, 0), (0, 0), (2, 0) and (4, 0), maximums at (-4, 38) and (1, 5), minimums at (-1, -6), and (3, -12), and end behavior $\lim_{x\to\infty} f(x)=\infty$ and $\lim_{x\to-\infty} f(x)=-\infty$.